

for rejection. As for the rejection to claims 8 and 11 based on the limitation “said plurality of layers”, Applicant has amended the application in a manner responsive to the rejection.

Regarding the rejection to claim 8 based on the word “diverse”, Applicant respectfully disagrees that the claim is indefinite based on the usage of the word “diverse.” The application provides plenty of description regarding diverse material for the person of ordinary skill to know the meaning of “diverse”, *see* page 10, lines 14-21, page 11, lines 28-29, page 21, line 22- page 22, line 1, and page 25, lines 14-26.

With respect to the rejection of claim 13 based on the terms “resin system”, the terms are a phrase of the art that is commonly used in the chemical field. In referring to a particular type of resin it is common for the manufacturer to refer to the resin as a particular type of resin system. For the convenience of the Examiner, Applicant has attached public domain information from Georgia-Pacific, REMR, RTP Company, Net Composites, Synetix, Sutton Road Marking, Ltd which provide examples of particular types of resins being referred to as a resin system (emphasis added by Applicant). The attached documents are incorporated herein by reference. In light of the attached documents, and the above remarks, Applicant states that terms “resin system” does not make the claim indefinite.

For the above reasons Applicant requests that the rejection of the aforementioned claims 3-5, 8, and 10-13 is withdrawn.

PRIOR ART REJECTIONS

Claims 1-5 and 12-13 were rejected under 35 U.S.C. § 102(b) as being anticipated by Mercuri et al. (U.S. Patent 5,902,762). The Examiner avers that Mercuri et al. shows a flexible graphite composite for use in gaskets comprising a resin-impregnated flexible graphite sheet of at 0.1 mm and regions of randomly embedded ceramic fibers (zones with different characteristics, i.e. presence and composition of filler materials).

Claims 6, 7, and 11 were rejected under 35 U.S.C. § 103(a) as being unpatentable over the aforementioned Mercuri et al. reference. In short, the Examiner concluded that it was obvious to modify the conditions of a composition because they were merely the result of routine experimentation, unless there is a showing of unexpected results.

Claim 8 was rejected under 35 U.S.C. § 103(a) as being unpatentable over the aforementioned Mercuri et al. reference in view of Aokai et al. (U.S. Patent No. 5,859,761). Lastly claims 9-10 were under 35 U.S.C. § 103(a) as being unpatentable over the aforementioned Mercuri et al. reference in view of Aokai et al. reference in further view of Boos et al. (U.S. Patent No. 3,648,126).

Applicant has amended independent claim 1 to include the element of claim 6. In light of the amendment of claim 1, Applicant requests that the 102(b) rejection of claims 1-5 and 12-13 is withdrawn for at least the reason that amended claim 1 includes at least one element that is not disclosed by the reference.

Applicant states that amended claim 1 is patentable over the cited art for at least the reason that the claim invention includes at least one property that was unexpected as compared to the prior art in accordance with MPEP § 716.02. A material comprising a composite flexible graphite sheet having a plurality of zones which have at least one characteristic which differs by greater than 5% has the unexpected property of a lower thru plane resistance as compared to both a monolithic sheet and a composite not having the aforementioned difference in characteristic. The attached declaration of Dr. Jeremy Klug is incorporated herein by reference as if fully rewritten for additional support and data regarding the aforementioned unexpected property.

Applicant states that in light of this surprising property, the invention, as recited in amended claim 1, is patentable over the references. Applicant requests that the grounds for rejection of claim 1 are withdrawn. With respect to the claims in the application that depend from claim 1, these claims are patentable at least for the reason that the claims depend from a claim that is patentable. Applicants requests that in view of the amendments and remarks that the prior based rejections of claims 1-5 and 7-13 of the application are withdrawn.

A petition for a one-month extension is attached. If there are any additional fees due in connection with the filing of this response, including any fees required for an additional extension of time under 37 C.F.R. 1.136, such an extension is requested and the Commissioner is authorized to charge or credit any overpayment to Deposit Account No. 50-1202.

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CONCLUSION

For the reasons set forth above, Applicants believe that the claims are patentable over the references cited and applied by the Examiner and a prompt and favorable action is solicited. The applicants believe that these claims are in condition for allowance, however, if the Examiner disagrees, the applicants respectfully request that the Examiner telephone the undersigned.

Respectfully submitted,
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In The Claims

1. (amended) A material useful as a substrate for an embossed flexible graphite sheet, the material comprising a composite flexible graphite sheet comprising a plurality of zones of flexible graphite sheet, wherein:
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at least one of said plurality of zones has a characteristic different from at least one other of said plurality of zones, wherein the difference in the characteristic is greater than about 5%.
3. (amended) The material of claim 1 wherein the characteristic property is one selected from the group consisting of: electrical conductivity, thermal conductivity, density, void condition, area weight, gas permeability, water permeability, particle size, type of graphite starting material, presence and composition of filler materials, degree of graphite intumescence, latent intumescence potential, the presence and composition of intercalation compounds, the presence and composition of residues, resin content and composition, degree of resin drying, degree of resin cure or cross-link, and the like.
4. (amended) The material of claim 1 wherein the thickness of one zone of the at least one of said plurality of zones is less than about 0.1 mm.
5. (amended) The material of claim 1 wherein at least one zone of said at least one of said plurality of zones are comprised of sheets less than about 2.0 mm in thickness.
6. (canceled) The material of claim 1 wherein the difference in the characteristics is greater than about 5%.

8. (amended) The material of claim 1 further including a layer of a diverse material interposed between at least two zones layers of said plurality of zones layers.
9. (amended) The material of claim 8 wherein the diverse material comprises is a foraminous material one selected from the group consisting of woven fabrics, and nonwoven fabrics, or webs of plastic, or metal, perforated films, and foils.
10. The material of claim 8 wherein the diverse material is a nonporous sheet, nonporous film or nonporous foil.
11. (amended) The material of claim 1 wherein at least one of said plurality of zones has a density of at least about 1.1 g/cc and at least one of said plurality of zones layers has a density of less than about 1.0 g/cc.
12. (amended) The material of claim 1 wherein a the resin is present at a level of at least about 5% in the flexible graphite sheet.